

### MAJOR DUTIES

Serves as Assistant Engineer on a diesel-powered tugboat that is over 65' in length, has engines with 600-2,000 horsepower, and displaces approximately 100-200 tons. Stands a regular watch on a vessel is engaged in tending and supplying floating plant construction and maintenance units, and in collecting drift, wreckage, and debris. Directs the work of unlicensed engine-room crew.

1. Operates propelling engines and other machinery such as bilge, fire and fuel pumps, high pressure air compressors, air tanks, hot water heating systems, capstan engines, the electrical system and other auxiliary power engines powering machinery, winch, lights, heating plant, etc. Is responsible for having engine in readiness for accomplishing directions received from the Master.

2. Tends and services all vessel equipment and maintains the engine room in a clean and orderly condition. Inspects electrical wiring, lights and motors, and makes repairs or replacements where needed. Cleans bilges. Inspects and tests air and fuel tanks, gauges and safety valves. Repacks stuffing box on propeller shaft and aligns shaft. Assures compliance with safety requirements in maintenance as well as operations of all plant. Furnishes information as to the status of work and compiles workload data pertinent to the impact of repairs on operations plans and requirements. Maintains and secures all tools, supplies, and equipment issued to the engine room department.

3. Assists Chief Engineer with more complicated repairs. Assists in preparing machinery and equipment for preservation during lay-up.

Performs other duties as assigned.

### SKILLS AND KNOWLEDGES

--Must hold a U.S. Coast Guard Engineer's license commensurate with the type engine room machinery and equipment, horsepower, and characteristics of the vessel to which assigned.

--A knowledge of the vessel diesel, electric, mechanical, hydraulic and/or electronic equipment, systems, and auxiliary plant and machinery, and the related knowledge and skill requirements to diagnose problems and malfunctions and supervise and participate in the repair, replacement, and modification of such machinery, engines, and systems. Applies the knowledge to understand how such equipment and systems operate individually or in combination and the ability to plan and lay out repair, replacement, maintenance, and modification plans and requirements ranging from those of a minor nature to those of extreme complexity. Applies knowledge of the fuel, water, and waste treatments associated with the various equipment and systems.

--Knowledge and ability to interpret and apply working drawings, sketches, diagrams, blueprints, and other information reflected in technical manuals. Applies knowledge of advanced shop math to accomplish computations pertinent to electricity and electronics, electronic equipment, air conditioning and heating, refrigeration and mechanical dimensions, tolerances and voltages.

Applies skill and knowledge in the use of a variety of testing instruments including refrigeration gages, ammeters, ohmmeters, and temperature testers in diagnosing problems and malfunctions, and a variety of measuring devices including feeler gages, vernier calipers, inside and outside calipers and micrometers, thread gages, dial indicators, screw pitch gages, protractors, dividers, composers, steel squares, clinometers, etc. Applies skill to accomplish work to tolerances of .001 inch.

--Knowledge of the uses of lathes, shapers, and milling machines to understand the processes necessary for certain repairs. Knowledge and skill in the use of drill press, honing equipment, grinders, jig borers, jig grinders, power hacksaws, electric and acetylene welding and flame cutting processes, and a variety of electric and hand tools common to the trades involved. Applies a knowledge of the characteristics of a variety of metals and alloys such as stainless, monel, brass, bronze, babbitt, silver, aluminum, mild and hardened steels, etc.

### RESPONSIBILITY

Works under the general supervision of the Chief Engineer who issues verbal orders and instructions regarding special or unusual details to be accomplished. Work is subject to spot checks for compliance with instructions. Engine room facilities are subject to periodic inspections by U.S. Coast Guard for compliance with marine safety regulations.

### WORKING CONDITIONS

Work is performed inside and outside subjecting employee to varying climatic conditions, abnormal noises, temperature, danger of burns, irritation from grease and oils, bruises, strains, danger from attending moving machinery, falling overboard, electrical shock, falls on slippery decks or steep stairways, possible drowning, and crankcase explosion. A life jacket is worn at all times while on deck.

### PHYSICAL EFFORT

Incumbent performs work from ladders, scaffolding, and platforms and where the parts, equipment, or systems are in hard-to-reach places. Work requires the incumbent to stand, stoop, bend, kneel, crawl, climb, and work in a tiring and uncomfortable position. Frequently lifts, carries, and sets up parts and equipment that weighs up to 40 pounds.

**ASSISTANT ENGINEER, TUG, CLASS I  
XH-4742-09  
EVALUATION STATEMENT**

**1. REFERENCES:**

- a. OPM, JGS, Utility Systems Repairer-Operator Series, WG-4742, July 1993
- b. U.S. Army Corps of Engineers Ladder Diagram

**2. SERIES AND TITLE DETERMINATION:**

Position serves Assistant Engineer on a Class I tug (over 65') diesel-powered tugboat. Duties require knowledge of the vessel diesel, electric, mechanical, hydraulic and/or electronic equipment, systems, and auxiliary plant and machinery, and the related knowledge and skill requirements to diagnose problems and malfunctions and supervise and participate in the repair, replacement, and modification of such machinery, engines, and systems. Employee must hold a U.S. Coast Guard Engineer's license commensurate with the type engine room machinery and equipment, horsepower, and characteristics of the vessel to which assigned. Position is allocated to the WG-4742 series. Position is titled Assistant Engineer, Tug, Class I, in keeping with prevailing maritime titling practices. The absence of the requirement for a Chief Engineer's license precludes classification as Assistant Engineer, Tug, Class I.

**3. GRADE DETERMINATION:**

Assistant Engineer positions are ranked three grade levels below that of the Chief Engineer and four grade levels below the Master, Tug, Class I. Since the Master, Tug, Class I, is graded at the XH-13 level, the Assistant Engineer, Tug, Class I, is graded at the XH-09 level.

**NOTES ON USING THIS BENCHMARK**

Licensed floating plant positions are ranked based on private industry practices. The Assistant Engineer is ranked four grades below the Master and three grades below the Chief Engineer, Tug, Class I. If the duties, responsibilities and grade of the Master, Tug, Class I, as well as the vessel characteristics, are significantly greater or less than this benchmark, the grade of the Assistant Engineer may be graded higher or lower as well.